

ONTARIO AGRICULTURAL COLLEGE

EXPERIMENT STATION

BULLETIN LVIII

SPRING GRAINS IN 1890

BY THOMAS SHAW PROFESSOR OF AGRICULTURE

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BULLETIN LVIII

EXPERIMENTS WITH SPRING GRAINS.

The tendency with every variety of grain that has ever been produced is to deteriorate when grown long upon the same kind of soil and in the same locality. The necessity therefore for the introduction of varieties from other countries, or from distant parts of the same country, and of producing varieties which are entirely new, will always exist. In this fact we find a perpetual argument for the existence of experimental farms.

The object of this Bulletin is to make known to our farmers (1) the varieties of spring grains which grew most successfully at this farm during the summer of 1890, and (2) important comparisons relating to all the varieties grown. These comparisons relate (1) to yield, weight of grain, weight of straw and date of maturing in all the varieties mentioned; (2) to color and other peculiarities of growth, to the structure and weight of the grains, to the relative percentage of the hull and to proneness to injury from rust in some of the varieties named, (3) to the number of varieties tested from different countries and the average yields obtained from them, and (4) to six-rowed and two-rowed barleys respectively, with and without hulls.

The information thus given has been obtained from tests made with 54 varieties of barley, 54 varieties of spring wheat, 20 varieties of pease and 92 varieties of oats. The different varieties of each kind of grain were grown under similar conditions as to soil and treatment. They were sown side by side upon plots containing one-fiftieth of an acre each in the case of the barleys, one-sixtieth of an acre in that of pease, and one-hundredth of an acre in that of the spring wheat and oats.

In the tables given below the yields are based upon the standard weights obtained from the measured bushel, and from samples that were thoroughly cleaned.

BARLEY.—The information given in the first table relates to the ten varieties of barley which gave the highest yields in 1889 and 1890. The average yield is given for the two years. The varieties

grown in 1889 were sown on April 15th and those of 1890 on April 19th.

Variety.	Kind.	Country whence obtained.	Bush. per acre.	Lb. of grain per bush.	Tons of straw per acre.	No. of grains per ounce.	Date of maturing.
Cheyne	2-rowed.	Germany.	48.5	53½	2.18	670	Aug. 6
Chevalier	2-rowed.	France ..	47.5	52½	1.13	726	" 7
Mandschuri	6-rowed.	Russia ...	47.3	51½	1.70	755	July 31
Oderbrucher	6-rowed.	Germany.	45.8	54½	1.42	743	Aug. 1
Empress	2-rowed.	England .	45.4	51½	1.92	720	" 6
Early Black	6-rowed.	France ..	44.8	51	1.61	591	July 31
Scotch Improved	6-rowed.	Ontario ..	44.4	52	1.27	805	" 31
Selected Chevalier...	2-rowed.	England .	43.0	50½	1.75	758	Aug. 7
Common	6-rowed.	Ontario ..	41.7	54½	1.29	319	July 31
Golden Drop	2-rowed.	Germany.	41.4	53½	1.84	646	Aug. 5

In addition to these, the following varieties went over 40 bushels per acre, viz.: Hallett's Pedigree (Germany), Phoenix (Germany), Italian Rice (Germany), and Imperial (France). Carter's Prize Prolific is not included in the above list as with us the average yield for the two years was 32.3 bushels per acre on the small plots and the return this year for the acre plot was 31½ bushels, and the weight for the crop of 1890 was 52 lb. per bushel. It appears however to have done much better in many other localities.

SPRING WHEAT.—The information given in the second table relates to seven varieties of spring wheat which gave the highest yields in 1890. They were sown April 25th.

Variety.	Country whence obtained.	Bush. per acre.	Lb. of grain per bush.	Tons of straw per acre.	Rust tendency.	Date of maturing.
Herison Bearded..	France ..	27.2	64	1.90	Very slight...	Aug. 8
White Fyfe	Ontario ..	26.9	60	1.39	Considerable.	" 14
Bart Trimenia....	Greece ..	26.3	64	1.06	Very slight..	" 10
White Russian....	Ontario..	22.1	57½	1.91	Considerable.	" 11
Red Fern	Ontario..	21.0	60	1.76	Slight	" 11
Pringle's Champion	Germany.	21.2	59½	1.90	Very slight..	" 12
Holben's Improved	Germany.	20.4	58½	1.70	Medium....	" 14

The Herison Bearded has been tested for two years, and was last year ahead of all the foreign varieties and also of all the Canadian

varieties except the Wild Goose. It is a fairly strong grower, stands up well and is almost entirely free from rust. The head is short but compact, and is bearded; the chaff is red and the berry is rather small but plump, and is also red. The Bart Trimenia, though a good yielder and weighs well, is rather coarse in the berry.

PEASE.—The information given in the third table relates to five varieties of pease which gave the highest yields in 1890. They were sown April 24th.

Variety.	Country whence obtained.	Bush. per acre.	Lb. per bush.	Tons of straw per acre.	Date of maturing.
Sweet Jessie	England	31.16	62½	.82	Aug. 11
Early Racehorse.....	England ..	29.29	64½	1.06	" 10
Mummy	Ontario.....	28.60	65½	1.26	" 11
Early Britain.....	England	28.37	60	.57	" 11
White Wonder	New Zealand.	27.67	64½	.30	" 5

OATS.—The information given in the fourth table relates to the ten varieties of oats which gave the highest yields for 1889 and 1890. The average yields are given for the two years. They were sown on April 22nd of each year.

Variety.	Country whence obtained.	Bush. per acre.	Lb. per bush.	Tons of straw per acre.	Date of maturing.
Goanette Black	France...	71.7	34½	2.7	July 9
Houdan Black	France...	69.1	34½	2.0	" 9
Chenailles	France...	69.1	34½	2.9	" 8
Oderbruchner	Germany.	66.6	31½	2.3	" 6
Danebrog	Germany.	64.0	32	2.7	" 9
Siberian	France...	63.6	34½	2.1	" 2
Black Etampes	France...	62.3	36½	2.5	" 9
Probstseier	Germany.	61.8	33	2.6	" 6
Pringle's Progress ..	Ontario..	61.8	28½	2.7	" 4
Improved Besthorne...	Germany.	61.8	32½	1.9	" 9

It will be observed that all but one of these best varieties are foreign, although 21 varieties of Canadian oats were grown, including nearly all the old standard varieties. The average of yield of the ten varieties given in the table was 64.1 bushels per acre, while the

average yield of the ten poorest was 27.8 bushels, that is, the ten good varieties yielded 230 per cent. more than the ten poor ones. It is also worthy of note that these good varieties all possessed the spreading head. The tendency to rust is slight in the first, third, fourth, fifth, seventh and ninth, considerable in the tenth and slight to medium in the rest. The color of grain in the first and second is pale black, the third and seventh black, the tenth yellow, and in the others white.

The Goanette Black, Houdan Black, Chenailles and Black Etampes are very much alike in all essential characteristics. The straw is strong and of medium height, or a little less. It stands exceptionally well, is not coarse and is almost entirely free from rust. They are somewhat inclined to shell easily when ripe, as is often the case with valuable grains. They also yield well and weigh well, and have a small percentage of hull as compared with the kernel.

AVERAGE YIELDS OF BARLEYS.—The average yields of barleys grown from seed obtained in the five countries named are as follows :

Country.	No. of varieties.	Bush. per acre.
Germany	17	35.6
England	13	42.2
France	7	37.6
Ontario	4	38.2
Sweden	4	33.5

AVERAGE YIELDS OF OATS.—The average yields of oats grown from seed obtained in the seven countries named in the table are as follows :

Country.	No. of varieties.	Bush. per acre.
Ontario	21	44.8
France	19	47.8
Germany	15	48.0
Scotland	13	41.8
England	9	41.8
Russia	5	42.7
Australia	4	32.6

TWO-ROWED AND SIX-ROWED BARLEYS.—The next table gives information regarding the 54 varieties of barley grown with and

without hulls as to yield, weight of grain per bushel and the size of the grains.

Character of head.	With or without hulls.	No. of varieties.	Bush. per acre.	Lb. per bush.	No. of grains per oz.
Six-rowed..	With hulls ...	9	37.45	51.22	772
	Without hulls	5	31.00	61.80	848
Two-rowed	With hulls ...	39	37.84	51.87	685
	Without hulls	1	21.90	63.00	478

It should be borne in mind (1) that the average yields obtained in growing these grains is more than the average is likely to prove in the country generally, for they were all grown under very favorable conditions; (2) that similar weights are not likely to be realised unless the grains are thoroughly cleaned; and (3) that the facts in this bulletin will be valuable mainly in localities with soil and climatic conditions similar to those here. The soil where these plots were grown may be termed a mild clay loam, containing a considerable quantity of humus, and it is somewhat low in aspect. The average mean temperature for the past four years for the five months commencing with May 1st has been 61.43° F.

CONCLUSIONS.

The following conclusions may safely be drawn from the experiments which have been summarised above:

1. It is highly probable that some of the foreign varieties of barley named in the table will be found to give higher yields than the varieties now grown in Ontario when they have become more generally introduced.
2. It is probable that in some localities the Herison Bearded spring wheat will be found to be an improvement on many of the varieties that are now grown.
3. From present indications, based upon the trial given in the table and upon a trial on a larger scale on the farm, the Mummy pea is likely to become a generally useful variety, although the straw is not highly valued for feeding purposes owing to its coarse habit of growth.
4. That four varieties of French oats, viz., the Goanette Black, the Houdan Black, the Chenailles and the Black Etampes, are likely to prove of much value to the farmers of this province, as they

possess in common and in a marked degree nearly all the most valuable characteristics of oats. Their color will however discount them in the estimation of the oatmeal millers. The behavior of the Oderbrucher, also a white variety from Germany, has been such as to entitle it to the favorable consideration of the farmers. It has been most favorably recommended by the oatmeal millers.

5. Judging from the experience of the past two years the English barleys give on the whole the best results, but some fine growing and yielding varieties come from Germany and France. In reference to oats, the French varieties should be placed first, all things considered, although some kinds from Germany do nearly as well.

6. The average yields obtained from the two-rowed and six-rowed varieties of barley are not far different, nor is there much difference in the average weights of the two classes.

7. The average returns from the foreign varieties are in a majority of instances superior to those from the old standard varieties.

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